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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/797,727	03/08/2004	Jeffrey R. Jobs	33585/US	3937

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EXAMINER

PEERS, CHASE W

ART UNIT PAPER NUMBER

2186

DATE MAILED: 03/21/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/797,727	Applicant(s) JOBS ET AL.	
	Examiner Chase Peers	Art Unit 2186	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 March 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-57 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 5, 6, 16, 17, 21, 22, 35-44, 47, 56 and 57 is/are rejected.
- 7) ☒ Claim(s) 2-4, 7-15, 18-20, 23-34, 45, 46, and 48-55 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|-----------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 5, 6, 21 and 22 rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. The use of "software" in these claims is not allowable in its current form. The examiner suggests that the software be on a tangible medium so as to make the claims non-offending.

Claims 37-44, 56 and 57 rejected under 35 U.S.C. 101 because the disclosed invention is inoperative and therefore lacks utility. Given how these claim have been written, they would not be compatible with the invention given in the earlier claims. The examiner recommends that the offending claims, which mix up the designated letter for each capacity and the total capacity, be amended so as to be operable with the invention given in the application.

Claim Objections

Claims 12, 30, 45, and 56 objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Given that the independent claims either state, in one way or another, that $N+P=M$ or that the

sum of the two capacities is a fixed value, claiming that the two capacities are altered within a range has already been given in the independents. The examiner suggests that the applicant cancel the claims.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 17, 36, and 47 rejected under 35 U.S.C. 103(a) as being unpatentable over Hamilton et al. (Pat No 4443845) and further in view of Krull et al. (Pat No 6301637).

1. Regarding claims 1, 17, and 36, Hamilton et al. describes a memory system with a method of coupling command, address and data signals between the memory hub controller and the memory hub in the at least one memory module, the method comprising: coupling command, address and data signals from the memory hub controller to the memory hub in the at least one memory module using a communications path having a first capacity; coupling data signals from the memory hub in the at least one memory module to the memory hub controller using a communications path having a second capacity, where the sum of the first capacity and the second capacity is a fixed value; having M buffers, N of the M buffers being

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configured as output buffers and P of the M buffers being configured as input buffers, at least one memory module, comprising a memory hub having a plurality of buffers, N of which are configured as input buffers and P of which are configured as output buffers; and altering the first capacity and the second capacity during the operation of the memory system (column 1, lines 25-59 and column 11, line 64 to column 13 line 10).

Hamilton et al. does not expressly describe having a memory hub and at least one memory module having a memory hub and a plurality of memory devices coupled to the memory hub.

Krull et al. describes having a memory hub and at least one memory module having a memory hub and a plurality of memory devices coupled to the memory hub (column 5, lines 37-52).

Hamilton et al. and Krull et al. are analogous art because they are from the same field of endeavor, memory. At the time of the invention it would have been obvious to a person of ordinary skill in the art to have the memory have a memory hub. The suggestion for doing so would have been for better efficiency with memory. Therefore, it would have been obvious to combine Krull et al. and Hamilton et al. for the benefit of more efficient memory to obtain the invention as specified in claims 1, 17, 36.

2. Regarding claim 47, Hamilton et al. discloses a processor-based system, comprising: a processor having a processor bus; a system controller coupled to the processor bus, the system controller having a peripheral device port; a memory hub controller coupled to the processor bus, the memory hub controller having an output

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port and an input port; a downstream bus coupled between the output port of the memory controller and the memory hub of the at least one memory module, the downstream bus having a width of M bits, the value of M being variable to adjust that bandwidth of the downstream bus; and an upstream bus coupled between the input port of the memory controller and the memory hub of the at least one memory module, the upstream bus having a width of N bits where N is equal to a fixed value less M, the value of N being variable to adjust that bandwidth of the upstream bus (column 1, lines 25-59 and column 11, line 64 to column 13 line 10).

Hamilton et al. does not expressly describe having a memory hub and at least one memory module having a memory hub and a plurality of memory devices coupled to the memory hub.

Krull et al. describes having a memory hub and at least one memory module having a memory hub and a plurality of memory devices coupled to the memory hub (column 5, lines 37-52).

Furthermore, where claim 47 states at least one input device coupled to the peripheral device port of the system controller (i.e. a keyboard or mouse), at least one output device coupled to the peripheral device port of the system controller (i.e. a monitor), and at least one data storage device coupled to the peripheral device port of the system controller (i.e. a hard drive), the examiner finds these limitations to be inherent.

Hamilton et al. and Krull et al. are analogous art because they are from the same field of endeavor, memory. At the time of the invention it would have been obvious to a person of ordinary skill in the art to have the memory have a memory hub. The suggestion for doing so would have been for better efficiency with memory. Therefore, it would have been obvious to combine Krull et al. and Hamilton et al. for the benefit of more efficient memory to obtain the invention as specified in claims 1, 17, 36.

Claims 16, 35 and 57 rejected under 35 U.S.C. 103(a) as being unpatentable over Hamilton et al. and Krull et al. as applied to claims 1, 17, and 47 above, and further in view of Story et al. (Pat No 6434654).

Hamilton et al. and Krull et al. describe all of the limitations of claims 1, 17, and 47, but do not teach the acts of altering the first capacity and the second capacity during the operation of the memory system comprise altering the first capacity and the second capacity during the initialization of the memory system.

Story et al. does teach the acts of altering the first capacity and the second capacity during the operation of the memory system comprise altering the first capacity and the second capacity during the initialization of the memory system (column 2, lines 30-39).

Hamilton et al., Krull et al. and Story et al. are analogous art because they are from the same field of endeavor, memory. At the time of the invention it would have been obvious to a person of ordinary skill in the art to alter the capacities during

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initialization. The suggestion for doing so would have been more efficient memory accesses, especially from not having to take the cycles to modify the capacities sometime later. Therefore, it would have been obvious to combine Hamilton et al., Krull et al., and Story et al. for the benefit of efficiency to obtain the invention as specified in claims 16, 35, and 57.

Allowable Subject Matter


Claims 2-4, 7-15, 18-20, 23-34, 45, 46, and 48-55 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chase Peers whose telephone number is (571) 272-6757. The examiner can normally be reached on from Monday to Friday, 8AM to 4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matt Kim can be reached on (571) 272-4182. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


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